M/045/0049
cc: Leslie

Desert Hawk Gold Corp.

1290 Holcomb Ave.
Reno, Nevada 89502

775-322-4621 ph
775-322-6867 fax

November 12, 2010

Mr. Michael G. Nelson
Assistant Field Manager – Nonrenewable Resourcees
US Bureau of Land Management
2370 South 2300 West
Salt Lake City, Utah 84119

VIA Certified Mail: 7000 0600 0023 3476 6686

Dear Mr. Nelson,

We are in receipt of your letter dated October 13, 2010 regarding UTW011 and UTU-73999. This letter relates to the operation of the existing Cactus Mill in Tooele County.

Discussion:

In review, Desert hawk Gold Corp. has invested approximately $2,000,000 in the Gold Hill district over the last 24 months. An amendment request was initially submitted to the BLM on April 11, 2009 and later formalized and resubmitted to the BLM and DOGM by North American Exploration in September, 2009.

We have elected to start up the mill and to commence operations under Large Mine Permit M/045/049 which was signed August 29, 2002 by Lowell Braxton of UDOGM and Robert Lopez of the BLM. A reclamation surety of $38,800 was posted at that time.

Desert Hawk Gold wants nothing more than a professional and cooperative relationship with the BLM, and we have every intention of adhering to the requirements of this existing permit. The Gold Hill District, which we control through a series of leases, has resources which will allow small to medium-sized production for generations. Our investors have committed an additional $6.5 million to the orderly development of the district.

Response to 10/13/2010 Letter:

In the body of your letter it states that the processing activities are not the same as those described in the original Plan. I have 31 documents dating back to 1988 and can find no inconsistencies with the original approved plan. As you know the documents get somewhat difficult to follow. As you are likely aware, the October 18, 1996 Plan was then negotiated, tentatively approved on April 27, 1999, and then had many sections appealed May 25, 1999. Several sections were remanded and several approved, and the Plan was later clarified in full on October 30, 2000. It was later memorialized by the Formal Approval of Notice of Intention to Commence Large Mining Operations, signed by Robert Lopez of the BLM on August 6, 2002.

As the documents are digested, issues such as the Water Rights and Water Balance were found in Clifton's favor and memorialized by the overruling of BLM Stipulations 1-3, 10 and 12. This substantially altered the nature of the permit.

Response to Item 1 (Flow Sheet)

We have provided a new flow sheet which is nearly identical to the old flow sheet (Exhibit A). I have included the old flow sheet. We used all the old existing mill process equipment but moved the spirals from an unsafe area against the ball mill to an open area in the new mill. A tungsten cleaner circuit was similarly moved to the new mill. Within the mill buildings, the only new equipment purchased was a new ball mill motor and starter, a new float cell motor, and a new float cell paddle motor. The mill flow sheet and process are almost completely unchanged, logical as the process revolves around the same ore that has been processed for 50 years.

In the original flow sheet, if the spirals are moved from before flotation to after flotation, we believe the flow sheets are identical. Again, other than the new motors, all the mill process equipment predates even the 10/96 Plan. The antiquated crusher, which could not be made operational under MSHA rules, was hauled off BLM property. Crushing is taking place in the Yellow Hammer Pit under permit S/045/0076.

Again, we are happy to iron out any additional concerns and answer any additional questions. We want nothing more than to get along.

Response to Item 2 (List of Chemicals)

The chemical list is almost the same. We will obviously use no cyanide or sulfuric acid (unless progress is made on the amendment). All chemicals will be stored according to their MSDS requirements. All barrels will be clearly labeled and stored within the new mill building. We would like to begin the use of three (3) additional chemicals (MSDS sheets attached as Exhibit B).

In the copper circuit it is important that we add and get approved a xanthate (Z6 Potassium Amyl Zanthate). The reagent is designed to stay with the concentrate (which will leave the site to be processed at a smelter), though a minor amount could end up in the tailings pond. There is low environmental risk except to fish (we have no fish) and fairly rapid degradation (hydrolyzing) in the environment.

We would also like to add a small amount (50 pounds per day) of soda ash, proper name is sodium carbonate, in the tungsten circuit if it proves beneficial – to raise the pH from 7.2 to 8.

We would also like to add a minor amount (less than 5 pounds per day) of Oleic Acid (MSDS included). We have used olive oil in the lab instead, but it would be a little more expensive.

These chemicals will be stored safely per their MSDS sheets, in the new mill building.

Response to item 3 (Daily Production Rate)

The original Approved Plan was remanded back to the BLM on appeal (5/25/1999). The 50 tpd production rate was offered as a concession originally by Clifton to avoid the stipulations subsequently demanded. On appeal, Stipulations 10 and 12 were reversed by the BLM, dropping

the water right and water balance issues that had led to the original compromise offer. The 10/30/2002 Approval signed by Robert Lopez of the BLM clearly states 200 tons per day.

We currently have a very small tonnage of ore developed, less than 30,000 tons, which is amenable to the milling process – so we all have time to do what is best at the site.

Response to item 4 (General Schedule)

As discussed, the District contains resources capable of feeding this mill and/or the mill and leach pad for many years. We anticipate running small tonnages of high grade ore for at least eight (8) more years, with one year required for reclamation. The target date is 2021 for reclamation unless new operating parameters are planned and approved.

We retain the option of running the Cactus Mill 300 days per year and 24 hours per day, although we do not have enough ore to operate at full rate at this time.

Response to Item 5 (On Site Crushing)

There is no on site crushing equipment at the Cactus Mill site at the present time. The old and unsafe crusher was removed, and crushing is being done in the Yellow Hammer Pit under permit S/045/0076. The new crusher has a valid air quality permit, but because of the small tonnage being crushed we have applied for an air quality permit exemption. We retain the option of returning appropriate crushing operations to the mill site.

Response to Item 6 (Sources of Volumes of Water)

We will not be discharging water off site or to the environment. Make-up water in the average amount of about 100 gpm will come from the long existing Cane Springs Shaft. A water line dating back at least 30 years has been patched and is being re-used. The January 14, 1997 letter of DEQ was presented to the BLM and DOGM and authorizes the operation of this facility in this matter.

Emergency water may come from the small allotment at Cane Springs itself. We intend to be good neighbors with this water and have been working with the sheep herders since we arrived two years ago. We anticipate usage of this water to be negligible but have been assigned the full right through our lease with Clifton Mining. As I am sure you are aware, this issue was heavily negotiated during the original permit process, and all outstanding issues found in favor of Clifton Mining on their appeal.

We will be reclaiming water from the tailings area as practical. Make-up water may reach 150 gpm in spurts but should level out at 50 gpm while we are running. Evaporation plus ore moisture retention will be the primary source of water elimination.

Response to Item 7 (Source of Material and Tailings Disposal)

The terms for Clifton Mining District and Gold Hill Mining District are used interchangeably (common usage and see UGS Miscellaneous Publication 05-5, Selected Mining Districts of Utah). The material will come from the same places it has for 96 years. Right now it will come exclusively from the Yellow Hammer Claims where a very small (25,000 ton), very high-grade pod of ore is exposed. The mill will be processing about 150 tpd of ore, and about 150 tpd of tailings are placed in the impoundment.

At least 22 deposits in the Clifton (Gold Hill) Mining District are under lease to Desert Hawk Gold and contain ores that are potentially amenable to leaching or milling.

Tailings will be disposed of at the existing tailings pond which has been cleaned up. A perimeter safety berm five (5) feet high would contain any spillage.

I have to answer the question in an either/or way. In either scenario, the tailings are contained within the existing tailings disposal area on site, which is also the area we intended to use as an evaporation pond in the amendment request. All tailings will be stored on site until reclamation.

Scenario 1) – Strongly Preferred by DHGC

The BLM approves the amendment request submitted 14 months ago. If done in a timely manner, the tailings generated between now and then would be negligible (depending on timing maybe less than 10,000 tons). These tailings would then be loaded onto the plastic liner that would be the leach pad. This material will contain highly economic leachable copper – the original point of the amendment request.

This current tailings area would then be lined and used as the new proposed evaporation pond.

There is adequate room to accommodate the mill tailings as well as heap leach ore under the proposed leach scenario. Mill tailings would be integrated into the crushed ore and stored above the crushed ore to minimize fines accumulation on the down stream side of the pad. Milled ore would represent about 25-30% of the total on the pad.

Scenario 2)

The amendment application to this Plan, which would allow a plastic liner to be placed, leak detection and ground water monitoring to occur. In the event this amendment is not approved in a timely manner, we will adhere to the permit as approved, working in cooperation with the BLM to operate an environmentally safe operation.

We currently have only about 30,000–40,000 tons of ore that will support a mill-only version of the Plan. We have much more that can be leached and not milled. If the leaching cannot be permitted, we will need to make plans to develop more millable ore to sustain the company.

A letter from DEQ allows the deposition of tailings in the existing location. The existing permit allows the operation of the mill. The $2 million invested to date into the Gold Hill district by DHGC is a vital and integral part of the plan.

If I have made any inadvertent omissions, please contact me and I will get you the added information. If there are other issues that we need to discuss, I am always available and would be happy to meet in person or over the phone.

There remain 100-150 jobs which are in jeopardy, and any help at any point would be appreciated very much.

Best regards,

Rick Havenstrite – by D Hatten
Dan Gratton –

Rick Havenstrite PE, President
Desert Hawk Gold Corp.
(775) 848-5193

Enclosures

cc: Project (w/encl)
Correspondence (no encl)

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Salt Lake Field Office
2370 South 2300 West
Salt Lake City, Utah 84119
ph: (801) 977-4300; Fax: (801) 977-4397
www.ut.blm.gov/saltlake_fo

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:
3809 (UTW011)
UTU-73999

OCT 13 2010

Rick Havenstrite
Desert Hawk Gold Corporation
8921 North Indian Trail Road, Ste. #288
Spokane, Washington 99208

Dear Mr. Havenstrite:

On October 15, 2009, the Bureau of Land Management (BLM) Salt Lake Field Office received the first draft of your proposed modification to the Plan of Operations for the Cactus Millsite serialized UTU-73999 (UDOGM permit M/045/049). Your submittal, which is classified as a Plan Amendment by the BLM, proposes the addition of acid heap leach operations at the site.

The original Plan of Operations for the Cactus Millsite, approved by BLM in October, 2000, describes milling operations consisting of crushing, gravity separation, and floatation, to produce mineral concentrates. BLM personnel have conducted numerous site visits to the millsite since the plan was approved. During those site visits, various components of an inoperable mill were observed, however, no actual processing has ever been witnessed.

Recent site visits and discussions with Desert Hawk Gold personnel reveal that the mill circuit is being worked on and reconfigured to operate in the near future. It now appears that the planned processing activities are not the same as those described in the original approved plan. Please provide the following information so your plan description accurately reflects the milling activities you plan to conduct at the site:

1) A new flow sheet. The approved Plan of Operations contains a flow sheet that is inconsistent with the mill circuit configuration that was observed.

2) The original Plan states that only the following chemicals and reagents would be used in processing: Sodium Sulfide, Methyl Isobutyl Carbinol, Dowfroth 250, Aerofloat 242, Aero 404, and Aero 350. Please provide an updated list of chemicals to be used during processing if different from the original approved plan. Also, describe how and where chemicals and reagents will be stored.

3) Please provide an estimate of the amount of material that will be processed daily if different from the 50 tons per day in the original approved plan.

4) Provide a general schedule of mill operations from start through closure in accordance with [§3809.401(b)(2)(vii)]. Provide a timeframe for how long the mill is expected operate and the date when you expect to complete site reclamation.

Also, please indicate the hours of the day you will be operating and the months of the year you will be operating, if different from the original approved plan that states that operations will occur year round for a total of 300 days a year.

5) Provide a description and location of any onsite crushing facilities.

6) Provide the sources and volumes of water that will be used in your mill process. Also describe the disposition of the water used in your process. For example, will it be completely recycled in your circuit or will it be stored or discharged? Will any make up water be required? The original plan states that excess water will be disposed of by evaporation and that there will be no discharge of water to the environment.

7) Please verify the source of material that will be used in your processing circuit. The original plan states the mill feed will be from the Clifton Mining District. Also please describe the disposition of all tailings that result from your mill circuit. For example, describe where they will be stored, total volumes, and how long will they be stored onsite. The original plan describes that "barren rock material will be piped out to the tailings pond". Under your proposed plan amendment for heap leaching at the site, there does not appear to be room for the storage of mill tailings from your process circuit.

Please submit the requested information within 30 days of receipt of this letter. If you have any questions, or require additional information, please contact Stephen Allen of my staff at (801) 977-4360.

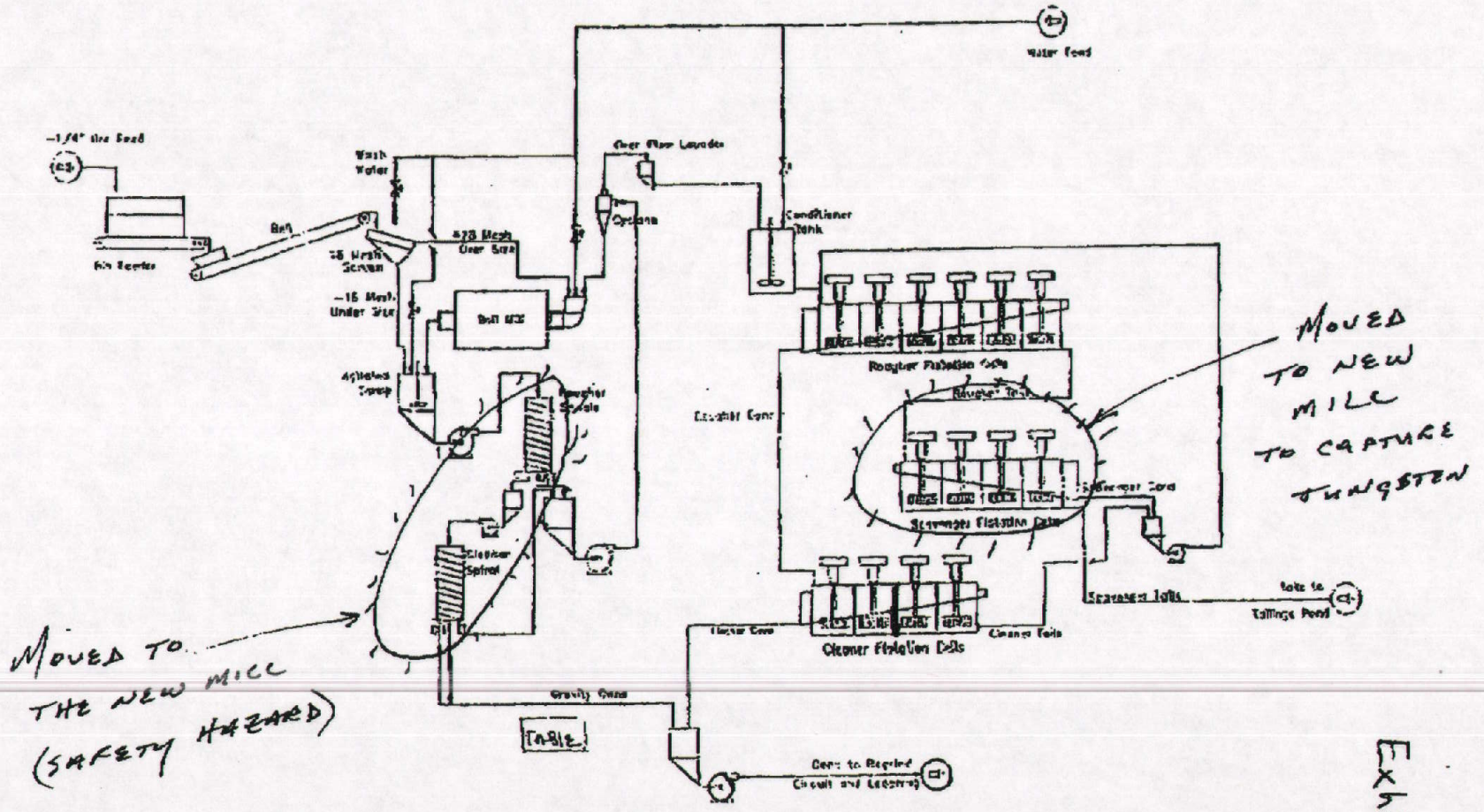
Sincerely,

Michael G. Nelson
Assistant Field Manager,
Nonrenewable Resources

cc: UDOGM, Leslie Heppler, 1594 West No.Temple, Ste. 1210# Box 145801, SLC, UT 84114-5801
Mr. O. Jay Gatten, North American Exploration, Inc. 447 North 300 West, Suite #3 Kaysville, Utah 84037-4203

(ORIGINAL)

Clifton Mining Co. Mill Flow Sheet



as per Rick Hawnstrite
Desert Hawk Gold Corp.
November 12, 2010

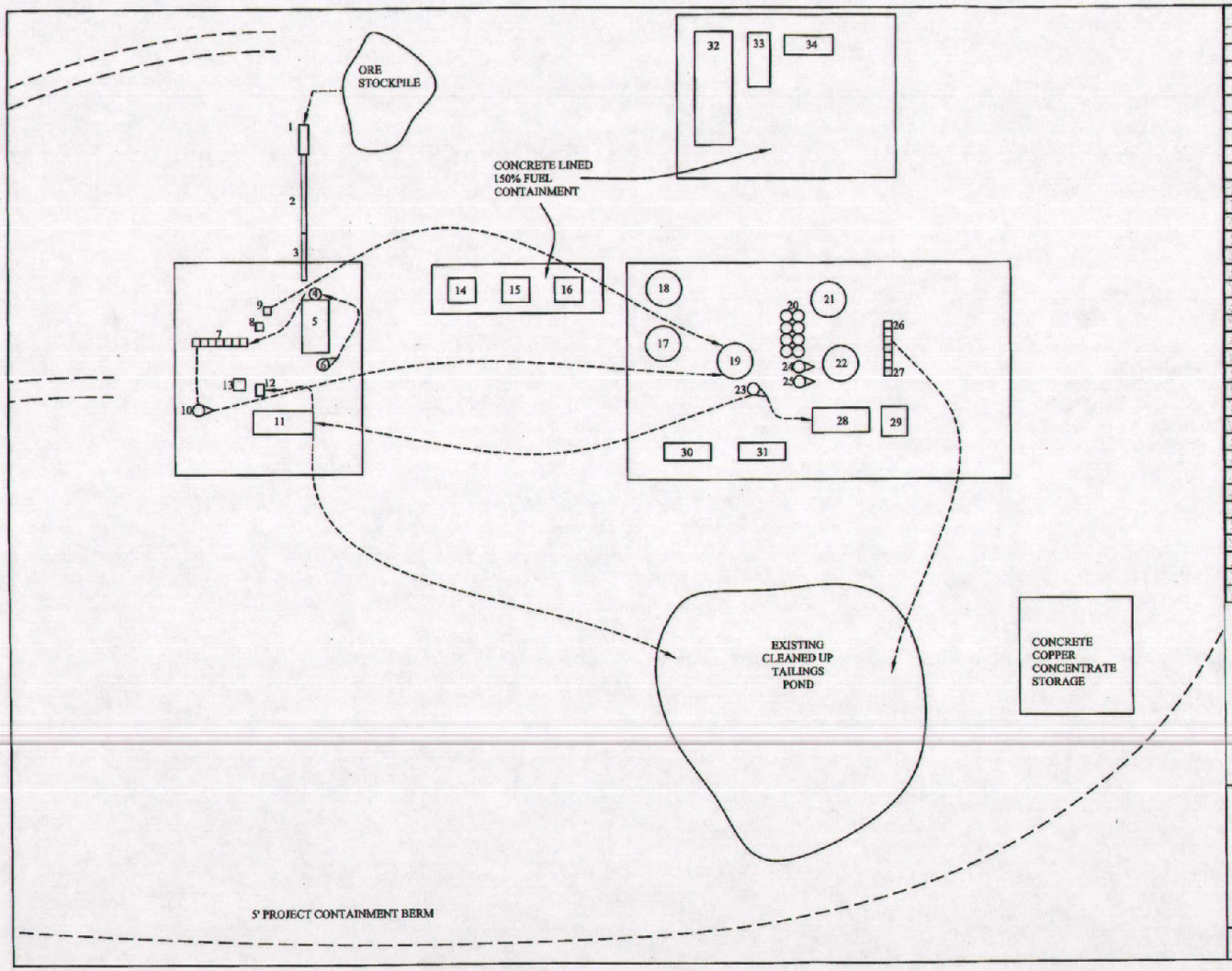
Exhibit A

November 12, 2010

Cactus Mill General Arrangement

1) Variable speed hydraulic apron feeder 36' x 72"
2) 30" x 40' conveyor
3) 30" x 24'feed conveyor
4) Feed box and 8" Krebs cyclone
5) 6' x 7' Denver 150 hp Ball Mill
6) 4x3 Denver SRL recirculation pump
7) 30 cf Denver rougher copper flotation cells
8) 30 cf First copper cleaner cell
9) 30 cf Final copper cleaner cell
10) 4x3 Rougher tails pump-- to spiral classifiers
11) Wiffley classifier table
12) Magnetic separator
13) Tungsten concentrate filter
14) 125 KVA auxiliary back-up generator
15) 500 gal surge deisel tank
16) 350 KVA primary generator
17) Water storage tank
18) Un-used existing tank
19) Concentrate thickener
20) 6 spiral classifiers
21) Tungsten concentrate agitated surge tank
22) Tungsten float feed tank
23) 2x2 diaphragm air pump copper concentrate
24) 2x2 diaphragm air pump spiral concentrate to surge tank
25) 2x2 diaphragm air pump spiral tails to tungsten float feed tank
26) Tungsten 25 cf rougher float cells
27) Tungsten 25 cf cleaner float cell
28) Belt filter for copper concentrate
29) Copper concentrate holding bin
30) 20 hp Sullair screw compressor
31) 20 hp Sullair piston compressor
32) 8000 gallon dyed diesel storage
33) 1000 gallon clear diesel storage
34) 500 gallon gas tank

Original list of Equipment for Cactus Mill (from approval hargo Mine Permit)



Cactus Mill General Arrangement	
1	Variable Speed Hydraulic Apron Feeder 36' x 72"
2	30" x 40' Conveyor
3	30" x 24' Feed Conveyor
4	Feed Box and 8" Krebs Cyclone
5	6' x 7' Denver 150 HP Ball Mill
6	4 x 3 Denver SRL Recirculation Pump
7	30 CF Denver Rougher Copper Flotation Cells
8	30 CF First Copper Cleaner Cell
9	30 CF Final Copper Cleaner Cell
10	4 x 3 Rougher Tails Pump - To Spiral Classifiers
11	Wilfley Classifier Table
12	Magnetic Separator
13	Tungsten Concentrate Filter
14	125 KVA Auxiliary Backup Generator
15	500 Gal Surge Diesel Tank
16	350 KVA Primary Generator
17	Water Storage Tank
18	Unused Existing Tank
19	Concentrate Thickener
20	6 Spiral Classifiers
21	Tungsten Concentrate Agitated Surge Tank
22	Tungsten Float Feed Tank
23	2 x 2 Diaphragm Air Pump Copper Concentrate
24	2 x 2 Diaphragm Air Pump Spiral Concentrate to Surge Tank
25	2 x 2 Diaphragm Air Pump Spiral Tails to Tungsten Float Feed Tank
26	Tungsten 25 CF Rougher Float Cells
27	Tungsten 25 CF Cleaner Float Cell
28	Belt Filter for Copper Concentrate
29	Copper Concentrate Holding Bin
30	20 HP Sullair Screw Compressor
31	20 HP Sullair Piston Compressor
32	8000 Gallon Dyed Diesel Storage
33	1000 Gallon Clear Diesel Storage
34	500 Gallon Gas Tank

DESERT HAWK GOLD CORP.
CACTUS MILL

MILL ARRANGEMENT
TOOELE Co, UTAH

Date: Nov–2010 | Flow Chart

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MATERIAL SAFETY DATA SHEET

Potassium Amyl Xanthate (PAX) Solution

SECTION 01 – PRODUCT AND COMPANY INFORMATION

Product Name ..... Potassium Amyl Xanthate Solution

Chemical Family ..... Xanthates; carbonodithioic acid salt

Synonyms ..... Potassium amyl xanthate; PAX; carbonodithioic acid, 0-pentyl ester, potassium salt; dithiocarbonic acid, 0-pentyl ester, potassium salt, potassium pentyl xanthate.

Formula C6H11 KOS2

Supplier Name ..... LogiChem Pty Ltd Incorporating Jostek Chemicals

Address ..... Bulong Road, PARKESTON, Kalgoorlie, Australia
PO Box 878 Kalgoorlie WA 6433 Australia

Phone ..... (08) 9091-7708 - **24 Hour Emergency Phone**

Fax ..... (08) 9091-7709

SECTION 02 – COMPOSITION

Chemical Ingredients (% by wt.)

	Cas Number	**Concentration**
Potassium amyl xanthate	CAS #:2720-73-2	20-30%
Water	CAS #:7732-18-5	80% Max

SECTION 03 – HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Caution: Liquid solution is strongly alkaline. Eye contact will result in mild to severe eye irritation. Contact with the skin will result in mild to severe burns of the skin. Ingestion of product will irritate mouth, throat and gastrointestinal tract. Inhalation of product vapours, mist may cause irritation of respiratory airways.

This product is listed as a HAZARDOUS material under criteria of NOHSC

This product is classified as DANGEROUS GOODS by the criteria of the ADG Code

Hazard Category ..... Corrosive

Risk Phrases .....
R21/22 Harmful in contact with skin & if swallowed
R31 Contact with acids liberates toxic gas.
R36/38 Irritating to eyes and skin.
R48/20 Harmful: danger of serious damage to health by prolonged exposure through inhalation.

Safety Phrases .....
S1/2 Keep locked up and out of reach of children.
S16 Keep away from sources of ignition – No smoking.
S33 Take precautionary measures against static discharges
S36/37 Wear suitable protective clothing and gloves.
S45 In case of accident or if you feel unwell, contact a doctor or Poisons Information Centre Immediately (show label where possible)

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MATERIAL SAFETY DATA SHEET

Potassium Amyl Xanthate (PAX) Solution

IMPORTANT NOTE REGARDING POSSIBLE PRESENCE OF CARBON DISULPHIDE (CS_2)

The freshly prepared xanthate solution will contain low levels of carbon disulphide. This is formed by decomposition of some xanthate molecules during dissolution of dry PAX.

During storage of xanthate solution there will be further decomposition of xanthate molecules producing yielding increasing levels of carbon disulphide in the solution. The rate of decomposition depends on factors such as the temperature of the solution and the presence of other elements and molecules.

Because it is a highly volatile liquid, carbon disulphide present in xanthate solution will produce carbon disulphide vapour which is toxic and extremely flammable (Flash Point -30°C).

If the freshly supplied xanthate solution is to be stored for more than 5 days the presence of carbon disulphide becomes an important consideration in the safe storage and handling of the solution and the MSDS for carbon disulphide should be consulted for guidance.

SECTION 04 – FIRST AID MEASURES

Ingestion ..... If victim is conscious, have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Have victim drink a glass of water. If vomiting occurs naturally, have victim lean forward to avoid aspiration. Repeat administration of water. Obtain immediate medical attention.

Eye..... Immediately flush with large quantities of water for 15 minutes. Hold eyelids apart during irrigation to insure thorough flushing of the entire area of the eye. Obtain immediate medical attention.

Skin ..... Immediately flush with large quantities of water. Remove contaminated clothing under a safety shower. Obtain medical attention if any irritation occurs.

Inhalation ..... Remove victim from contaminated atmosphere. If breathing is laboured, administer oxygen. If breathing has ceased, clear airway and start mouth to mouth resuscitation. If heart has stopped beating, external heart massage should be applied. Obtain medical attention.

SECTION 05 – FIRE FIGHTING MEASURES

Keep storage containers involved in a fire cooled with water spray. Heating will form flammable CS2 vapours

Flammability..... Xanthate solutions are **not** flammable substances. They do decompose to form flammable compounds such as highly flammable carbon disulphide and alcohol.

Extinguishing Media..... Use water to extinguish flames. Do not allow water run-off to enter sewers or waterways.

Fire fighting procedures..... As in any fire, wear self-contained breathing apparatus, positive pressure, full protective gear & apparatus which supplies a positive air pressure within a full face-piece mask.

Fire explosion hazard..... Xanthate solution upon aging, heating or exposure to acids will generate carbon disulfide (CS2) vapours. Storage containers should be equipped with a forced exhaust to prevent build-up of these vapours. Storage containers should be carefully grounded.

Flammable Properties ..... Non-flammable solution which may release carbon disulphide.

Flash Point: -22°F (-30°C)		Carbon disulfide (CS_2)	**Method Used**: Closed cup
Flammable Limits	(Carbon disulfide)	**LFL:** 1.3%	**UFL:** 50%

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MATERIAL SAFETY DATA SHEET

Potassium Amyl Xanthate (PAX) Solution

SECTION 06 – ACCIDENTAL RELEASE MEASURES

Large releases: ..... Confine area to qualified personnel. Extinguish or remove all ignition sources. Shut off release if safe to do so. Dike spill area to prevent runoff into sewers, drains or surface waterways (potential aquatic toxicity). Recover as much of the solution as possible. Treat remaining material as a small release.

Handling: ..... Avoid contact with eyes. Use only in a well ventilated area. Wash thoroughly after handling. Avoid prolonged or repeated breathing of vapours. Avoid prolonged or repeated contact with the skin. Ground drums and bond transfer containers (grounding clips must contact bare metal). (See Section 5, for fire dangers) Use caution opening containers with xanthates of unknown age (CS2 vapour accumulation).

SECTION 07 – HANDLING & STORAGE

Storage ..... Store in cool, dry, well ventilated areas. Do not store combustibles in the area of storage vessels. Keep away from any sources of heat or flame. Store tote and smaller containers out of direct sunlight at moderate temperatures. Storage containers should be properly grounded. (See Section 10 for materials of construction)

Handling ..... Avoid contact with eyes. Use only in a well ventilated area. Wash thoroughly after handling. Avoid prolonged or repeated breathing of vapours. Avoid prolonged or repeated contact with the skin.

SECTION 08 – PERSONAL PROTECTION AND EXPOSURE CONTROLS

Maintain an eyewash/safety shower in immediate work areas.

Skin Protection: ..... Neoprene rubber gloves, apron and boots (as appropriate) should be worn to prevent repeated or prolonged contact with the liquid. Wash any contaminated clothing prior to reuse.

Eye Protection: ..... Chemical goggles and preferably a full face shield.

Respiratory Protection ..... Use in well ventilated areas. If conditions exist where mist may be generated, an approved mist respirator should be worn. If CS2 vapours are present wear a Type A (Organic Vapour) Respirator.

Ventilation ..... Do not inhale. Use in well ventilated areas. In poorly ventilated areas, mechanical explosion proof extraction ventilation is recommended. Flammable/explosive vapours may accumulate in poorly ventilated areas. Vapours are heavier than air and may travel some distance to an ignition source and flash back. Maintain vapour levels below the recommended exposure standard.

Exposure Guidelines:	**TWA**	**IDLH(Inhalation)**	**TCLo (inhalation)**	**LCLo (inhalation)**
Carbon disulfide (evolved)	10 ppm	500ppm	40 mg/m3 (man)	2000ppm / 5 minutes (human)

SECTION 09 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance: ..... Yellow liquid.
Odour: ..... Strong organic odour
Boiling Point: ..... >100° C
Solubility in Water: ..... Complete
Specific Gravity: ..... 1.08 -1.11 (200 – 300g/Litre)

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MATERIAL SAFETY DATA SHEET

Potassium Amyl Xanthate (PAX) Solution

Ph: ..... 10.5 -12.5

SECTION 10 – STABILITY AND REACTIVITY

Stability: ..... PAX solutions are relatively stable if they are kept cool and the pH is maintained within an acceptable range. Under certain conditions, potassium amyl xanthate decomposes to very toxic and extremely flammable carbon disulfide. The rate of carbon disulfide generation from solution increases with temperature, pH below 8 (becoming rapid below pH 7; acidic conditions) or pH greater than 13, as well as with time (aging of the solution). Maximum stability of solutions is attained at a pH of approximately 10.

Hazardous Polymerization: ..... Does not occur

Hazardous Decomposition Products: ..... Decomposition products in water include carbon disulfide, trithiocarbonate, pentanol, potassium carbonate.

Incompatibility: ..... **Acids or Acidic solutions** – the hydrolysis of xanthate solutions, which produces carbon disulfide, is accelerated by acidic pH (less than 8)

Alkaline solutions (pH greater than 13) – reacts to produce carbon disulfide, hydrogen sulphide, n-pentanol, trithiocarbonate and potassium carbonate.

Strong oxidizing Agents (e.g. peroxides, nitrates and perchlorates) – risk of fire and explosion.

Metal Salts (e.g. copper, iron, lead or zinc salts) – accelerate the decomposition to carbon disulfide.

SECTION 11– TOXICOLOGICAL INFORMATION

Oral: ..... Oral-Rat LD50: 1,000 – 2,000 mg/kg Intravenous-Mouse LD50: 99 mg/kg

SECTION 12 – ECOLOGICAL INFORMATION

Environment ..... If discharged to waterways, xanthates may persist for several days, hydrolysing slowly in the neutral environment. Bioaccumulation is unlikely. Highly toxic to aquatic life. May form complexes with heavy metals, increasing their uptake, i.e. fish may accumulate heavy metals more readily.

SECTION 13 – DISPOSAL CONSIDERATIONS

For small amounts, absorb with sand, vermiculite or similar and dispose of to an approved landfill site. For larger amounts, contact the manufacturer for additional information. Prevent contamination of drains or waterways as aquatic life may be threatened and environment damage may result.

Dispose of in accordance with relevant local legislation.

SECTION 14 – TRANSPORTATION INFORMATION

Classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for Transport by road and Rail.

Shipping Name: ..... Corrosive Liquid Toxic N.O.S

UN Number: 2922

Dangerous Goods Class: 8

Dangerous Goods Sub Class: 6.1

Packing Group: III

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MATERIAL SAFETY DATA SHEET

Potassium Amyl Xanthate (PAX) Solution

HAZCHEM CODE: 2X

SECTION 15 – REGULATORY INFORMATION

Poison Schedule: ..... Classified as Schedule 6 (S6) Poison using the criteria in the Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP)

SECTION 16 – OTHER INFORMATION

Risk Assessment ..... The effects from exposure to this product will depend on several factors including handling methods, the frequency and duration of exposure, and the effectiveness of control measures.

Users must thoroughly assess the risks involved with handling this product and apply appropriate control methods including use of ventilation equipment and the correct personal protective equipment.

Contact Person ..... Jonty Eales – General Manager
Telephone 08 9091-7708 (24 hours)

Note: The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations.

Material Safety Data Sheet

Science Stuff, Inc.
1104 Newport Ave
Austin, TX 78753

Phone (512) 837-6020
Chemtrec 800-424-9300
24 Hour Emergency Assistance

Section 1 Identification

Product Number:	C2549
Product Name:	Sodium Carbonate (Soda Ash) Laboratory Grade, Granular
Trade/Chemical Synonyms	
Formula:	Na_2CO_3
RTECS:	VZ4050000
C.A.S	CAS# 497-19-8

Health:	1
Flammability	0
Reactivity	0

Hazard Rating:

Least Slight Moderate High Extreme
0 1 2 3 4

NA = Not Applicable NE = Not Established

Section 2 Component Mixture

Sara 313	Component	CAS Number	%	Dim	Exposure Limits:
☑	Sodium Carbonate (Soda Ash)	CAS# 497-19-8	100%	W/W	None Established

Section 3 Hazard Identification (Also see section 11)

Harmful if swallowed. May cause irritation. Avoid breathing vapors, or dusts. Use with adequate ventilation. Avoid contact with eyes, skin, and clothes. Wash thoroughly after handling. Keep container closed.

Section 4 First Aid Measures

Harmful if swallowed. May cause irritation. Avoid breathing vapors, or dusts. Use with adequate ventilation. Avoid contact with eyes, skin, and clothes. Wash thoroughly after handling. Keep container closed.

FIRST AID: SKIN: Wash exposed area with soap and water. If irritation persists, seek medical attention.

EYES: Wash eyes with plenty of water for at least 15 minutes, lifting lids occasionally. Seek Medical Aid. INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen

INGESTION: If swallowed, induce vomiting immediately after giving two glasses of water. Never give anything by mouth to an unconscious person.

Section 5 Fire Fighting Measures

Fire Extinguisher Type:	Any means suitable for extinguishing surrounding fire
Fire/Explosion Hazards:	Explosion may occur when applied to red-hot aluminum
Fire Fighting Procedure:	Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and clothing.

Section 6 Accidental Release Measures

Wear Protective equipment. Sweep up, place in a bag and hold for waste disposal. Flush residue and liquid spills to holding area for neut. Before discharge.

Section 7 Handling and Storage

Store in a cool, dry, well-ventilated place away from incompatible materials. Wash thoroughly after handling.

Section 8 Exposure Controls & Personal Protection

Respiratory Protection: NIOSH approved dust mask

Ventilation: Mechanical: ☑ Local Exhaust: ☑

Hand Protection: Wear appropriate gloves to prevent skin exposure

Eye Protection: Goggles and Face Shield

Other Protective Equipment: Wear appropriate clothing to prevent skin exposure

Section 9 Physical and Chemical Properties

Melting Point:	851° C	Specific Gravity	2.53
Boiling Point:	Decomposes	Percent Volatile by Volume:	N/A
Vapor Pressure:	N/A	Evaporation Rate:	N/A
Vapor Density:	N/A	Evaporation Standard:	
Solubility in Water:	Soluble	Auto ignition Temperature:	Not applicable
Appearance and Odor:	White poeder or granules, odorless	Lower Flamm. Limit in Air:	Not applicable
Flash Point:	N/A	Upper Flamm. Limit in Air:	Not applicable

Section 10 Stability and Reactivity Information

Stability: Stable

Conditions to Avoid: Application to red-hot aluminum

Materials to Avoid:
Strong oxidizing agents, metals, acids, organics

Hazardous Decomposition Products:
Carbon dioxide, carbon monoxide

Hazardous Polymerization: Will Not Occur

Condition to Avoid: None known

Section 11 Additional Information

Effects of overexposure: Acute: May cause eyes burns. Harmful if swallowed. Inhalation of dust may cause respiratory tract irritation, coughing or labored breathing. Excessive contact can damage nasal septum. Ingestion may be corrosive to GI tract, symptoms may include severe abdominal pain, vomiting, diarrhea and collapse. Skin contact may cause irritation w/blistering and redness. May be corrosive to eyes and cause conjuctivitis, edema and corneal distruction. Chronic: Prolonged or prolonged contact may cause sensitization. Conditions aggravated/target organs: Persons with pre-existing eye, skin or respiratory conditions may be more susceptible

DOT Classification: Not Regulated

DOT regulations may change from time to time. Please consult the most recent version of the relevant regulations.

Revision No:0 Date Entered: 9/1/2006 Approved by: WPF

MSDS Number: **O3596** * * * * * *Effective Date:* ***08/18/05*** * * * * * *Supercedes:* ***08/10/04***

MSDS Material Safety Data Sheet

From: Mallinckrodt Baker, Inc.
222 Red School Lane
Phillipsburg, NJ 08865

Mallinckrodt CHEMICALS | J.T.Baker

24 Hour Emergency Telephone: 908-859-2151
CHEMTREC: 1-800-424-9300

National Response in Canada
CANUTEC: 613-996-6666

Outside U.S. and Canada
Chemtrec: 703-527-3887

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

OLEIC ACID

1. Product Identification

Synonyms: 9-Octadecenoic Acid
CAS No.: 112-80-1
Molecular Weight: 282.46
Chemical Formula: CH3(CH2)7CH:CH(CH2)7COOH
Product Codes:
J.T. Baker: 0224
Mallinckrodt: 2744

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
9-Octadecenoic Acid, (Z)-	112-80-1	100%	Yes

3. Hazards Identification

Emergency Overview

CAUTION! MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT.

SAF-T-DATA(tm) Ratings (Provided here for your convenience)

Health Rating: 0 - None
Flammability Rating: 1 - Slight
Reactivity Rating: 1 - Slight
Contact Rating: 1 - Slight
Lab Protective Equip: GOGGLES; LAB COAT; PROPER GLOVES

Storage Color Code: Green (General Storage)

Potential Health Effects

Inhalation:
May cause irritation to the respiratory tract.
Ingestion:
Extremely large oral dosages may produce gastrointestinal disturbances.
Skin Contact:
Mild irritant, possibly causing surface inflammation especially on prolonged contact with oily skin.
Eye Contact:
Mild irritant on prolonged contact, causing reddening, possibly blurred vision.
Chronic Exposure:
No adverse health effects expected.
Aggravation of Pre-existing Conditions:
No adverse health effects expected.

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4. First Aid Measures

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
Ingestion:
If large amounts were swallowed, give water to drink and get medical advice.
Skin Contact:
In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Get medical attention if irritation develops or persists.
Eye Contact:
In case of contact, flush eyes with plenty of water for at least 15 minutes. Get medical advice if irritation develops.

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5. Fire Fighting Measures

Fire:
Flash point: 189C (372F)
As with most organic liquids, fire is possible at elevated temperatures or by contact with an ignition source.
Explosion:
Explosion is possible at or above conditions given above.
Fire Extinguishing Media:
Dry chemical, foam or carbon dioxide. Water spray may be used to keep fire exposed containers cool.
Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Do not use heavy streams of water, molten material will float on water.

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6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Neutralize with alkaline material (soda ash, lime), then absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! Remove all sources of ignition.

7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from any source of heat or ignition. Outside or detached storage is recommended. Store in the dark. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:
None established.
Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.
Personal Respirators (NIOSH Approved):
Not expected to require personal respirator usage.
Skin Protection:
Wear protective gloves and clean body-covering clothing.
Eye Protection:
Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:
Pale yellow or brownish-yellow oily liquid.
Odor:
Characteristic lardlike odor.
Solubility:
Insoluble in water.
Specific Gravity:
0.895 @ 25C/25C
pH:
No information found.
% Volatiles by volume @ 21C (70F):
0
Boiling Point:
360C (680F)
Melting Point:
16.3C (61F)

Vapor Density (Air=1):
No information found.
Vapor Pressure (mm Hg):
1.0 @ 176C (349F)
Evaporation Rate (BuAc=1):
No information found.

10. Stability and Reactivity

Stability:
Stable under ordinary conditions of use and storage. On exposure to air it can oxidize and turn yellow to brown in color with a rancid odor.
Hazardous Decomposition Products:
Carbon dioxide and carbon monoxide may form when heated to decomposition.
Hazardous Polymerization:
Will not occur.
Incompatibilities:
Aluminum, perchloric acid. Oxidizing agents.
Conditions to Avoid:
Excessive heat or cold, light, air.

11. Toxicological Information

Oral rat LD50: 25 gm/kg. Irritation: skin rabbit: 500 mg open mild. Investigated as a tumorigen and mutagen.

--------\Cancer Lists\----------

Ingredient	---NTP Carcinogen--- Known	Anticipated	IARC Category
9-Octadecenoic Acid, (Z)-(112-80-1)	No	No	None

12. Ecological Information

Environmental Fate:
When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material is expected to have a half-life of less than 1 day. When released into the soil, this material is expected to readily biodegrade. When released into the soil, this material is expected to have a half-life of less than 1 day. When released into water, this material is expected to readily biodegrade. When released into the water, this material is expected to have a half-life between 1 and 10 days. When released into water, this material may evaporate to a moderate extent. This material has a log octanol-water partition coefficient of greater than 3.0. This material has an estimated bioconcentration factor (BCF) of greater than 100.
Environmental Toxicity:
No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Not regulated.

15. Regulatory Information

--------\Chemical Inventory Status - Part 1\---------

Ingredient	TSCA	EC	Japan	Australia
9-Octadecenoic Acid, (Z)- (112-80-1)	Yes	Yes	Yes	Yes

--------\Chemical Inventory Status - Part 2\---------

Ingredient	Korea	--Canada-- DSL	NDSL	Phil.
9-Octadecenoic Acid, (Z)- (112-80-1)	Yes	Yes	No	Yes

--------\Federal, State & International Regulations - Part 1\---------

Ingredient	-SARA 302- RQ	TPQ	------SARA 313------ List	Chemical Catg.
9-Octadecenoic Acid, (Z)- (112-80-1)	No	No	No	No

--------\Federal, State & International Regulations - Part 2\---------

Ingredient	CERCLA	-RCRA- 261.33	-TSCA- 8(d)
9-Octadecenoic Acid, (Z)- (112-80-1)	No	No	No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: No Fire: No Pressure: No
Reactivity: No (Pure / Liquid)

Australian Hazchem Code: None allocated.
Poison Schedule: None allocated.
WHMIS:
This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: **1** Flammability: **1** Reactivity: **0**
Label Hazard Warning:
CAUTION! MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT.
Label Precautions:
Avoid contact with eyes, skin and clothing.
Wash thoroughly after handling.
Avoid breathing vapor or mist.
Use with adequate ventilation.
Keep container closed.
Label First Aid:
In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes. Call a physician

if irritation develops or persists. If inhaled, remove to fresh air. Get medical attention for any breathing difficulty.

Product Use:
Laboratory Reagent.

Revision Information:
MSDS Section(s) changed since last revision of document include: 3, 11.

Disclaimer:
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